

## INTERACTIVE TELEVISION SYSTEM WITH NEWSGROUPS

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This application claims the benefit of U.S. Provisional applications Serial No. 60/141,501, filed June 28, 1999 and Serial No. 60/144,695, filed 5 July 20, 1999.

Background of the Invention

This invention relates to television newsgroup systems, and more particularly, to techniques for providing and supporting newsgroup message forums in a television environment that may include an 10 interactive television program guide.

A popular aspect of the Internet relates to Usenet message forums. A user of such a service may join a Usenet group to discuss a variety of topics. A 15 Usenet server acts as an intermediary between the participants of a Usenet forum. Users post messages to a particular Usenet forum by typing in the message from their computer and transmitting the message to a Usenet server which makes the message available to the public. 20 To read a Usenet message, a user logs onto the Usenet server, accesses the particular forum in which the message resides, and then opens the message. The user may then respond by posting another message to the Usenet server.

Usenet forums are referenced using associative parameters. For example, to read or post messages in the Seinfeld Usenet forum, a user might access the Usenet forum alt.tv.seinfeld. For a more  
5 general discussion of television sitcoms, the user might access the Usenet forum alt.tv.sitcom.

One of the problems with accessing a desired Usenet forum is that the name of a particular forum may not be easy to guess. Users may therefore search for  
10 desired forums. For example, a user who wishes to post a question about a particular opera he or she has recently seen might search for an appropriate Usenet forum using the keyword "opera." One search result may be rec.music.opera. Users may also search for desired  
15 forums by browsing through directories of forums.

Every time the user wishes to post or read about a message about a different topic, a search may be required. Moreover, Usenet forums are added and deleted on a regular basis. A user might use one  
20 Usenet forum to discuss a particular topic on one day, only to find on the next day that a new and narrower Usenet forum has been created that better suits the discussion.

Traditionally, Usenet forums have been used  
25 by the more savvy computer user. UNIX used to be a popular platform on which to run software such as "tin," which is a popular Usenet forum reader, allowing the user to search for Usenet forums, access Usenet forums, and read and post messages in the Usenet  
30 forums. With the Internet and computer technology becoming more mainstream, non-technical users are becoming increasingly active in the Usenet forum discussions. Services such as Dejanews provide a relatively user-friendly, web-based platform for  
35 accessing, posting, and reading the messages in most of

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the tens of thousands of Usenet forums currently available.

One of the benefits Usenet forums provide is the ability to post and retrieve files. Although the entire system of messaging is text-based, various methods of encoding digital data into text exist. Likewise, various methods of decoding text into digital data exist. UUencode and UUdecode are examples of such utilities, respectively.

10           Originally, Usenet forums were used for technical and academic discussions. Today's Usenet forums address a cross-section of everyday issues, including lifestyle, fashion, news, business, etc. Television programs are often discussed in Usenet  
15 forums as well. However, there is generally no way in which a user of a traditional Usenet forum service may easily view a television program while participating in a Usenet discussion about that program. A user might locate a television in the same room as the user's  
20 personal computer, but such an arrangement would be awkward to view. Moreover, many households locate their televisions in the living room, but are reluctant to locate their computers in the living room.

Although personal computers may be provided  
25 with tuner cards that allow television signals to be displayed on the computer monitor, many television viewers would prefer to view television on a traditional television. Televisions generally offer greater viewing areas than computer monitors, so that  
30 users need not sit nearly as close to a television screen as they would to a computer monitor. Televisions are also typically located in rooms within the home that are more suitable for watching television than where computers are typically located.

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5 viewers to access the Internet through a WebTV Plus Receiver connected to their television sets. The WebTV Plus Receiver enables users to surf the World Wide Web on their television by connecting their televisions to the web-based WebTV Network through a standard phone  
10 line. The WebTV System permits users to view television program listings and web sites related to television programs that appear in the program listings.

The WebTV system also provides TV Crossover Links that allow users to access web sites that are related to television programs. The WebTV Plus Receiver detects data such as web links (i.e., URLs) that is embedded in the video broadcast and notifies users with a TV Crossover Link watermark on their television screens. The TV Crossover Links permit users to link to web sites through the Internet related to the television program that the user is watching. The user can view the web site and the television program simultaneously through the WebPIP picture-in-picture function. If the web site supports Usenet features, the user might access a given Usenet forum through the Internet while watching a television program. There is nothing in the WebTV system, however, that ensures that participants in the Usenet forum are watching the same television programs as the user. The messages in the forum may therefore be considerably less focused than they would be if all the participants were actively viewing the same television program.

Interactive television program guides implemented on set-top boxes allow users to view television program listings on their televisions. Such program guides allow users to view television program listings in different display formats and to perform various other functions. For example, a user may instruct the program guide to display a channel-ordered grid of current program listings. The user may also use the program guide to search for programs in a desired programming category such as sports, movies, news, or the like. If desired, the program guide may be used to order pay-per-view programming. Interactive program guides have not, however, been capable of providing Usenet-related features.

Previously-known systems have generally not provided television viewers with opportunities to engage in Usenet forum communications with other television viewers without relying solely on the Internet. Previously-known systems also have not provided television viewers with opportunities to engage in Usenet forum communications involving exclusively other viewers of a television program or channel. Moreover, previously-known interactive television program guides have not supported Usenet forum discussion features.

It is therefore an object of the present invention to provide a way in which an interactive television application such as an interactive television program guide may be used to assist users in accessing and interacting with newsgroups.

#### Summary of the Invention

This and other objects of the invention are accomplished in accordance with the principles of the present invention by providing a television newsgroup

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system that allows users to use an interactive television application such as an interactive television program guide to access newsgroups.

5 Newsgroup features may be provided as part of an interactive television application such as an interactive television program guide. The users may watch television while accessing newsgroups related to the programming being viewed. Archived video clips may be accessed in this way.

10 The newsgroup feature may be accessed by the user while watching television or the newsgroup feature may also be accessed when the user is using an interactive television program guide and selects a program or class of programs. For example, while  
15 watching a television program, the user may press a "News" key on a keyboard or remote or may make an on-screen selection to invoke the newsgroup feature. A user of the interactive television program guide may activate the newsgroup feature while displaying an  
20 interactive information screen. The user may also activate the newsgroup feature by selecting a program, a channel, a category programming (e.g., movies), or other programming-related item (actor, director, etc.).

25 The interactive television application may allow the user to navigate directly to a newsgroup option that is not directly related to a selected program. The application may allow the user to continue watching television while accessing news groups.

30 The interactive television system may provide a set of newsgroups that may be made available to the user through the newsgroup feature of the interactive television application. The set of newsgroups may be limited to newsgroups that are specifically television  
35 related or may include a wider group of topics. The

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set of newsgroups may be cross-referenced with the programs, channels, and other topics covered by the interactive television program guide or other interactive television application. For example, while  
5 accessing newsgroup messages in a newsgroup related to "The Dukes of Hazard," a user may be provided with the ability to view other content related to The Dukes of Hazard. Links to television programming related to The Dukes of Hazard may be provided. Links to other  
10 newsgroups related to The Dukes of Hazard may be provided. A newsgroup may be cross-referenced to multiple topics. Cross-referencing may be performed manually or automatically. Cross-referencing may be performed once when a newsgroup is added into the  
15 system, or the cross-references may be updated continually based on the content of the newsgroup messages in the newsgroup. This cross-referencing allows the user to easily find all newsgroups that may be related to a specific topic of interest.

20 Newsgroups may be rated with parental control ratings. These ratings may be added manually or automatically. Some of the newsgroups may be moderated to ensure that they meet the specified rating. There may also be an automatic filter to ensure that content  
25 of some or all newsgroups meets standards.

The interactive application may have a parental control feature for newsgroups. The parental control feature for the newsgroups may be combined with the other parental control features of the interactive  
30 television application, or the parental control feature for newsgroups may be a separate feature. For example, if newsgroups are given ratings comparable to movies or television shows, then interactive television applications such as the interactive television program  
35 guide may block access to newsgroups with the same

ratings as movies or programs that are blocked.  
Accessed to parentally-controlled newsgroups may be  
allowed, for example, to a user who knows a parental  
control code.

5           A parent may also specify that the  
application should block a specific newsgroup or list  
of newsgroups. In addition, the parent may specify a  
list of keywords to block. All newsgroups with those  
keywords may be blocked as well.

10           When accessed from a specific program,  
channel, category, actor, or other specific criteria,  
the interactive television application may  
automatically search for newsgroups that reference the  
specified criteria. As a television program may have  
15 several criteria, the newsgroups for each criterion may  
be combined into a single list. The interactive  
television application (e.g., the interactive  
television program guide) may present a list of  
newsgroups to the user and may allow the user to choose  
20 one or more newsgroups to access.

When accessed without specific program-  
related criteria, the interactive television  
application may allow the user to enter criteria,  
keywords, or other means to search for groups.

25           The application may allow the user to put  
newsgroups onto a list of favorite newsgroups. A  
household may have multiple lists of favorite  
newsgroups.

30           A user can ask to be notified (e.g., by e-  
mail) when a new newsgroup message is posted to a  
specific newsgroup. The notification may result from  
any new newsgroup message, from a new newsgroup message  
from a particular other user, from a new newsgroup  
message with a given subject, or from a new newsgroup  
35 message with specific keyword(s). The e-mail

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5 the referenced newsgroup and newsgroup message).

15 features, the user may be able set a reminder,  
purchase, lock out, add to a profile, schedule a  
recording, or otherwise act on a referenced program,  
channel, or other programming item.

20 include other items, such as advertisements. The  
advertisements may be related to newsgroups or the  
advertisement may not necessarily be related to  
newsgroups. The advertisement may be interactive.

30 messages, etc. The user may select any newsgroup to  
access its newsgroup messages.

35 in multiple ways, based on user input. For example,

the application may filter out previously read  
newsgroup messages, newsgroup messages in a particular  
thread, or newsgroup messages from a particular other  
user. The newsgroup messages may be sorted using  
5 message thread, date, sender, or other criteria.

The user may select any newsgroup message and  
read it. The user may also take other actions on the  
newsgroup message, such as deleting it (i.e., removing  
it from the user's view, although it may still remain  
10 in the newsgroup). The user may remove and/or block  
future newsgroup messages in this message thread or  
from the same sender. The user may ask to be notified  
when a new newsgroup message is received in this thread  
or from this sender.

15 A newsgroup message may include text,  
graphics, audio, video, or any combination of these or  
other content. Video may replace the television image  
or may be in a different portion of the screen. Audio  
may temporarily replace the television audio, or may be  
20 mixed with it. Newsgroup messages may also include  
interactive applications. For example, a Java applet  
may be attached to a newsgroup message if the  
interactive television environment supports downloaded  
Java applets. Other formats, such as DHTML and  
25 JavaScript may also be supported.

The user may reply to a newsgroup message in  
a newsgroup, or the user may post a new newsgroup  
message. A newsgroup message posted by the user may  
include text (e.g., entered with a wireless keyboard or  
30 on-screen keyboard). A newsgroup message may also  
include audio/video clips (e.g., previously recorded by  
the user on a local or remote digital server, or  
available from a library of video clips provided by the  
interactive application). A newsgroup message may also  
35 allow the user to import media, such as graphics,

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video, audio, etc., if the platform has such a capability (e.g., an IEEE 1394 port for retrieving data from a camcorder or digital camera).

The user may attach a reference to a particular program, channel, or other programming entity to a newsgroup message. A recipient of that newsgroup message may be able to easily access a description of that item, and act on it (e.g., set a reminder, purchase, lock, tune, record, etc.). A recipient of that newsgroup message via the Internet access (i.e., not using the interactive television application), may just see a text description of the item.

A user may request that an existing news group (e.g., one that is accessible via the Internet) be made available to the interactive television application. A user may also be able to create a new newsgroup that is accessible to the public. This new newsgroup may actually be hosted on a server related to the interactive television application, located for example at the television distribution facility (e.g., cable headend).

Further features of the invention, its nature, and various advantages will be more apparent from the accompanying drawings and the following detailed description of the preferred embodiments.

#### Brief Description of the Drawings

FIG. 1A is a diagram of an illustrative television newsgroup message system in accordance with the present invention.

FIG. 1B is a diagram of an illustrative user television equipment device having a user interface based on a wireless keyboard in accordance with the present invention.

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FIG. 1C is a diagram of an illustrative television screen keyboard user interface in accordance with the present invention.

FIG. 1D is a diagram of an illustrative user interface television display screen providing a list of standard messages or words in accordance with the present invention.

FIG. 2A is a diagram of an illustrative system in which user television equipment devices of multiple television distribution facilities are connected via a television program entity in accordance with the present invention.

FIG. 2B is diagram of an illustrative system showing how multiple user television equipment devices may be connected to a television distribution facility and a separate server via neighborhood networks in accordance with the present invention.

FIG. 3 is a diagram of an illustrative system showing how multiple television distribution facilities and user communications equipment devices may be connected via a communications network in accordance with the present invention.

FIG. 4 shows an illustrative interactive television program guide display screen in accordance with the present invention.

FIG. 5 shows an illustrative interactive television application display screen with information about a particular program in accordance with the present invention.

FIG. 6A shows an illustrative interactive television application display screen with newsgroup listings in accordance with the present invention.

FIG. 6B shows an alternative illustrative interactive television application display screen to

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the one shown in FIG. 6A in accordance with the present invention.

FIG. 7 shows an illustrative newsgroup message listing display screen in accordance with the present invention.

FIG. 8 shows an alternative illustrative newsgroup message listing display screen to the one shown in FIG. 7 in accordance with the present invention.

FIG. 9 shows an illustrative newsgroup message display screen in accordance with the present invention.

FIG. 10 shows an illustrative newsgroup search display screen in accordance with the present invention.

FIG. 11 shows an illustrative favorite newsgroup display screen in accordance with the present invention.

FIG. 12A shows an illustrative interactive television application display screen with an favorite newsgroup option in accordance with the present invention.

FIG. 12B shows an illustrative interactive television application display screen with an favorite newsgroup option in accordance with the present invention.

FIG. 13 shows an illustrative interactive television application display screen with newsgroup listings and a video region in accordance the present invention.

FIG. 14 shows an illustrative interactive television application display screen with newsgroup message listings and a video region in accordance with the present invention.

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FIG. 15A shows an illustrative interactive television application display screen with a newsgroup message having links to attachments and a video region in accordance with the present invention.

5           FIG. 15B shows an illustrative interactive television application display screen with a newsgroup message that automatically activated applications and a video region in accordance with the present invention.

10           FIG. 16 shows an illustrative interactive television application display screen with a video file playing application and a video region in accordance with the present invention.

15           FIG. 17 shows an illustrative interactive television application display screen with a running applet and a video region in accordance with the present invention.

20           FIG. 18 is a flow chart of illustrative steps involved in allowing a user of the interactive television application to access newsgroup messages in accordance with the present invention.

25           FIG. 19 shows an illustrative interactive television application display screen with newsgroup message listings related to one subject and a video region with video related to another content in accordance with the present invention.

FIG. 20 is a graph illustrating the cross-reference relationship between newsgroup and television programs in accordance with the present invention.

30           FIG. 21 shows an illustrative interactive television application display screen with a newsgroup message and cross-reference listings in accordance with the present invention.

35           FIG. 22 is a flow chart of illustrative steps involved in maintaining cross-reference information in accordance with the present invention.

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FIG. 23 is a chart of illustrative newsgroup ratings that may be used in accordance with the present invention.

FIG. 24 is a flow chart of illustrative steps involved in automatically rating newsgroups in accordance with the present invention.

FIG. 25 is a diagram of an illustrative system having moderated newsgroups and unmoderated newsgroup forums in accordance with the present invention.

FIG. 26 is a diagram of an illustrative system involving the use of an automatic filter to maintain a constant rating for newsgroups in accordance with the present invention.

FIG. 27 shows an illustrative interactive television application display screen with parental controls features blocking access to adult material in accordance with the present invention.

FIG. 28A shows an illustrative interactive television application display screen with an option to receive notification of new newsgroup messages in accordance with the present invention.

FIG. 28B shows an illustrative interactive television application display screen with a pop-up overlay notifying the user that a new newsgroup message has been posted in accordance with the present invention.

FIG. 28C shows an illustrative interactive television application display screen with an e-mail message listing notifying the user that a new newsgroup message has been posted in accordance with the present invention.

FIG. 28D shows an illustrative interactive television application display screen with the content

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of the e-mail message listing shown in FIG. 28C in accordance with the present invention.

FIG. 28E shows an alternative illustrative interactive television application display screen displaying the content of the e-mail message listing shown in FIG. 28C in accordance with the present invention.

FIG. 29 shows an illustrative interactive television application display screen with a newsgroup message having links to other content in accordance with the present invention.

FIG. 30 is diagram of an illustrative system for posting newsgroup messages to a newsgroup server in accordance with the present invention.

FIG. 31 shows an illustrative interactive television application display screen with options allowing a user to attach references to a newsgroup message in accordance with the present invention.

FIG. 32 shows an illustrative interactive television application display screen containing a newsgroup message being written using codes to reference other content in accordance with the present invention.

FIG. 33A shows an illustrative interactive television application display screen containing a newsgroup message being written using codes generated by the interactive television application in accordance with the present invention.

FIG. 33B shows the illustrative interactive television application display screen in FIG. 33A after the user selected one of the displayed options in accordance with the present invention.

FIG. 34 is a flow chart of illustrative steps involved in creating a new newsgroup in accordance with the present invention.

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Detailed Description of the Preferred Embodiments

Newsgroups, for the purposes of the present

invention, may include any message forum system, or any combination of message forum systems. For example,

- 5 Usenet is a type of message forum system. Usenet is made up of tens of thousands of Usenet groups that span a large cross-section of subject matter. The interactive television application described by the present invention may create a portal to not only the
- 10 Usenet groups (which are accessed primarily over the Internet) but also to small scale forums, such as local forums that are kept on personal web servers made available to the public. In addition, proprietary newsgroups may be available via the interactive
- 15 television application. All of these forums are collectively referred to, herein, as "newsgroups." A "newsgroup" is any one generic forum, which may be a Usenet group or a proprietary forum or any other suitable forum. Standards, such as RFC1036 standard,
- 20 may be used for specifying the format and content of newsgroup messages. For example, newsgroup message may limit newsgroup messages to American standard code for information interchange (ASCII) characters. If desired, other character sets may be used. Standards
- 25 may be used for the transmission of newsgroup messages and for communication with newsgroup servers. These standards may include various protocols such as Unix-to-Unix copy protocol (UUCP) and transmission control protocol/Internet protocol (TCP/IP) for the
- 30 transmission of newsgroup message information, requests, etc. Any suitable combination of transfer and transmission protocols may be used with any suitable combination of newsgroup message content standards.

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An illustrative television newsgroup system 10 in accordance with the present invention is shown in FIG. 1A. Main facility 12 may contain a program guide database 14 for storing program guide information such as television program guide listings data, pay-per-view ordering information, etc. Database 14 allows system 10 to support an interactive television program guide if desired. Advertisement database 15 may be used to store advertisement banners, text, videos, etc.

10 Although the television newsgroup features of the present invention may be provided using a television newsgroup system without a program guide, certain aspects of the invention will be described primarily in the context of an interactive television program guide system configuration for specificity and clarity.

15 Interactive television program guides are interactive television applications that provide users with program listings and information on other content. Interactive television program guides may be implemented using client-server arrangements.

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Information from database 14 may be transmitted to television distribution facility 16 via communications link 18. If desired, information from database 14 may be sent to any other suitable location (e.g., to a paging transmitter). That is, program guide data from database 14 need not be distributed by the same facility that distributes television programming. For example, television distribution facility 16 need not distribute program guide data, but rather may distribute television programming while a paging transmitter distributes the program guide data.

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Link 18 may be a satellite link, a telephone network link, a fiber optic link, a cable link, a microwave link, a combination of such links, or any other suitable communications path.

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Television distribution facility 16 is a facility for distributing television signals to users, such as a cable system headend. Some aspects of the invention may be implemented using a television  
5 distribution facility such as a broadcast distribution facility, or a satellite television distribution facility. Only one television distribution facility 16 is shown in FIG. 1A to avoid over-complicating the drawings. In general, however, main facility 12  
10 distributes information to multiple television distribution facilities.

The program guide information transmitted by main facility 12 to television distribution facility 16 may include television program listings data such as  
15 program times, channels, titles, descriptions, etc. The information transmitted from main facility 12 may also include information on interactive message features (e.g., television program contests, surveys, evaluations, promotions, etc.) that are available for  
20 particular television programs or channels. The information transmitted from main facility 12 may also include newsgroup information. For example, cross-reference information between newsgroup content and other content provided by the interactive television  
25 application may be transmitted by main facility 12.

If desired, some of the program guide data and other TV message information may be provided using data sources at facilities other than main facility 12. For example, data relating to available television  
30 program-specific message features (e.g., a contest, promotion, survey, etc.) may be provided by a television program entity associated with a television channel, or other facility that is separate from main facility 12 and television distribution facility 16.

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Television distribution facility 16 distributes program guide data and other information to the user television equipment 20 of multiple users via communications paths 24. Communication paths 24 are preferably bidirectional to support newsgroup messaging and preferably have sufficient bandwidth to allow television distribution facility 16 to distribute scheduled television programming, pay programming, newsgroup messages, and other video and audio information to user television equipment 20 in addition to non-video program guide information and newsgroup messages. The newsgroup messages supported by communication paths 24 may be text-based or, if more bandwidth is available, the newsgroup messages may be audio or video newsgroup messages, or larger text newsgroup messages (if, for example, digital data for multimedia files is encoded into text messages). If television distribution facility 16 is a cable system headend, communications paths 24 may be based on coaxial cable or fiber optics or the like. If television distribution facility 16 is a satellite system or broadcast system, unidirectional paths may involve transmitting information in free space. Bidirectional paths may have a free-space downlink to the home and a telephone line or cable or fiber optic return path from the home to the television distribution facility 16.

User television equipment may be based, for example, on a set-top box or other such device. For clarity, many aspects of the invention are described in connection with this illustrative arrangement, although any other suitable hardware arrangement for the user television equipment 20 may be used if desired.

Multiple television and audio channels (analog, digital, or both analog and digital) may be

provided to user television equipment devices 20  
(including, e.g., set-top boxes 26) via communications  
paths 24. If each path 24 includes a number of  
traditional analog television channels, one or more of  
5 these channels may be used to support a number of  
digital channels. The bandwidth of each analog channel  
that is used to support digital channels may support  
ten or more of such digital channels. Two-way digital  
channels typically require more bandwidth than one-way  
10 digital channels. Such two-way digital channels may  
support two-way communications in the form of newsgroup  
messages between set-top boxes 26 and a server (e.g.,  
at television distribution facility 16). If two-way  
communications between set-top boxes 26 and television  
15 distribution facility 16 involve only text or audio  
signals, the bandwidth required to support such two-way  
communications may be substantially less than the  
bandwidth required to support two-way communications  
involving video and may even be substantially less than  
20 a one-way digital channel carrying video.

Newsgroup messages may be distributed along  
communications path 24 using any number of suitable  
techniques. For example, text newsgroup messages may  
be distributed using out-of-band channels on paths 24  
25 using out-of-band modulators. Video or audio newsgroup  
messages (encoded or not encoded) may be more  
efficiently transmitted using one or more digital  
channels on path 24. Such digital channels may also be  
used for distributing text and graphics. Any suitable  
30 communications protocols may be used for sending  
newsgroup messages and the like. For example,  
communications may be analog or digital, synchronous or  
asynchronous, packet-based, Internet protocol  
transmissions, etc.

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Dedicated digital or analog channels, or at least an allocated portion of the available bandwidth in communications paths 24, may be used for the transmission of newsgroup messages. Such dedicated channels may be separate from the channels used for transmitting television program broadcast signals to the user television equipment.

Television programming may be transmitted to user television equipment 20 along one communications path such as a satellite link from a satellite system, while newsgroup messages to and from the user are distributed over a second communications path such as a telephone or cable.

Television distribution facility 16 preferably has a server or other suitable computing equipment or audio or video equipment such as audio voice mail equipment (herein collectively referred to as newsgroup equipment 22) for supporting the transmission of newsgroup messages between users and newsgroup server (local or remote). For clarity, certain aspects of the invention are simply described as being implemented using a newsgroup server although these aspects of the invention are also applicable to other types of newsgroup equipment. The newsgroup equipment 22 (e.g., a newsgroup server) may be capable of handling newsgroup messages involving text, graphics, video, or audio data. If desired, the bandwidth requirements of newsgroup message equipment 22 may be reduced by restricting newsgroup messages to text, audio, and/or graphics, rather than including video. Newsgroup equipment 22 in television distribution facility 16 may be configured in a client-server arrangement in which each piece of user television equipment 20 (i.e., each user television equipment device 20) acts as a client processor.

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Each user may have a receiver, which is typically a set-top box such as set-top box 26, but which may also be other suitable television equipment into which circuitry similar to set-top box circuitry has been integrated. For example, user television equipment 20 may be based on an advanced television receiver such as a high-definition television (HDTV) receiver or other such television-based platform. A set-top box may include a DOCSIS modem for use in two-way communication to and from a server or television distribution facility. For clarity, the present invention will be described primarily in the context of user television equipment 20 that is based on set-top boxes 26. As shown in FIG. 1A, each set-top box 26 may have memory 25. Memory 25 may be used, for example, for maintaining a database of program listings data.

Program guide information may be distributed to set-top boxes 26 continuously (in real-time), periodically, on request (using a client-server arrangement), or using a combination of these techniques. Newsgroup messages may be distributed to set-top boxes 26 in real-time or on-demand (e.g., when a user checks newsgroup forums or newsgroup equipment 22 and requests a newsgroup message for viewing). If desired, newsgroup messages may be transmitted to the user periodically. For example, newsgroup messages in the user's favorite newsgroups may be periodically transmitted to the user's set-top box 26 and stored (or generate an e-mail message, etc.).

The newsgroup equipment 22 may receive newsgroup messages from set-top boxes 26 in real-time or periodically. If desired, newsgroup equipment 22 may receive newsgroup messages on-demand. For example, after a user writes a newsgroup message and is stored in the set-top box 26, a routine that informs newsgroup

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equipment 22 that new newsgroup messages are waiting  
may be activated causing newsgroup equipment 22 to  
collect the newsgroup message stored in set-top box 26.  
Alternatively, newsgroup equipment 22 may periodically  
5 (or randomly or continuously) poll the user television  
equipment 20 to determine if there are any new  
newsgroup messages that the user wishes to post to one  
or more particular newsgroups. Such polling may be  
merely consist of a flag dedicated to informing  
10 newsgroup equipment 22 whether new newsgroup messages  
are waiting to be posted. If such newsgroup messages  
exist, then newsgroup equipment 22 may collect the  
newsgroup messages and post them accordingly. These  
are illustrative methods for collecting newsgroup  
15 messages from user television equipment 20 by newsgroup  
equipment 22. Any other suitable method may be used.

Main facility 12 preferably contains a  
processor to handle information distribution tasks.  
Each set-top box 26 preferably contains a processor to  
20 handle tasks associated with implementing an  
interactive television program guide application  
containing television newsgroup features or an  
independent television messaging application on the  
set-top box 26 (hereinafter collectively referred to as  
25 a television newsgroup messaging set-top box  
application or simply a set-top box application).  
Television distribution facility 16 preferably contains  
one or more processors (e.g., part of newsgroup  
equipment 22) for tasks associated with the  
30 distribution of newsgroup messages and for tasks  
associated with providing program guide data to the  
program guide on the set-top boxes.

It should be understood that some or all of  
the functions of the program guide or the newsgroup  
35 messaging set-top box application hereinafter described

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may be integrated into an operating system on the set-top box, implemented as a stand-alone application on the set-top box, or performed by a server (e.g., part of newsgroup equipment 22 or separate from the television distribution facility). In a client-server architecture, the set-top box sends data or requests to the server. The server can store and process data and send the results of a request back to the user television equipment for further processing, display, or storage. Any of the functionality of the set-top box application hereinafter described may be implemented using client-server architecture.

Various mechanisms may be used for launching the television newsgroup messaging set-top box application from a program guide application on the user's set-top box. One mechanism involves using a hot link to launch the television newsgroup messaging set-top box application. Hot linking involves invoking a non-program-guide application such as television newsgroup messaging set-top box application with information such as a web site address, e-mail address, program title, or other information that has been preselected based on the current content of the program guide or status of set-top box 26. For example, if the user is watching a program, viewing a program listing, viewing the description of a program, or taking other action within the program guide related to a given program, channel, type of channel, or the like and the user directs the program guide to launch a non-program-guide application, the program guide may launch that non-program-guide application and direct that non-program-guide to take an action related to the given program, channel, type of channel, or the like.

Hot links may be activated by dedicated buttons, a launch button, menu options, or any other

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suitable technique. For example, a remote control may be provided with a dedicated newsgroup button, a dedicated shopping button, and similar buttons associated with other non-program-guide applications.

5 When the user presses the newsgroup button, the program guide launches the television newsgroup messaging set-top box application and directs the television newsgroup messaging set-top box application to set up a newsgroup message to a newsgroup forum devoted to a  
10 character in the program, a fan club, or entities associated with the program. When the user presses a shopping channel button, the program guide launches a shopping application (e.g., for purchasing gifts for recipient users) and directs the program guide to  
15 preselect merchandise related to the program. Further features of an illustrative hot linking system are described in commonly assigned U.S. Patent Application 09/346,134 (Michael D. Ellis, et al.), which is hereby incorporated by reference in its entirety.

20 Each set-top box 26 is typically connected to an optional videocassette recorder 28 or other such recording device so that selected television programs may be recorded. Each videocassette recorder 28 (or set-top box 26) may be connected to a television 30.

25 To record a program, set-top box 26 tunes to a particular channel and sends control signals to videocassette recorder 28 (e.g., using an infrared transmitter) that direct videocassette recorder 28 to start and stop recording at the appropriate times. If  
30 desired, any other suitable recording device may be used (e.g., personal television recorder) that may use either analog or digital recording means and/or media. If desired, the recording device may be incorporated into set-top box 26, television 30, or any other  
35 suitable equipment.

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15       As shown in FIG. 1B, user interface 32 may contain a wireless keyboard 34 that sends signals 36 (e.g., infrared signals) to set-top box 38, which is connected to television 40. The user's input may be displayed as part of a television newsgroup system  
20   display screen on television 40 as the input is entered through wireless keyboard 34. If television newsgroup system 10 is based on an interactive television program guide, the display screen provided on television 40 by set-top box 38 may be on an interactive television  
25   program guide display screen. The displayed interactive television program guide display screen or other program guide display screens provided by the program guides may contain program listings.

User interface 32 may also be based on a television screen keyboard 50 as illustrated in FIG. 1C. The user can select letters from the displayed alphabet to compose a message 52. In particular, the user may select letters from alphabet keys 54 and spaces from space bar 56. The user may select a letter so that it becomes highlighted (such as letter L 58) by

pressing arrow keys and an enter key (also called an OK or select key) on a remote control. Pressing the OK key on the remote control directs the program guide containing message features or the independent  
5 messaging application to place the selected letter adjacent to cursor 62. The user may select SHIFT option 51 to place a capital letter in message 52. In this way, a user can compose the text of a message.

If desired, the user may compose newsgroup  
10 messages by selecting from a list of standard newsgroup messages 70 or words 72 displayed in a display screen such as display screen 75, as shown in FIG. 1D. The words or newsgroup messages may be predetermined, determined by the user, or both. If determined by the  
15 user, they may be specifically entered by the user into the list, or they may be automatically saved by the system based on newsgroup messages previously sent by the user. A word or newsgroup message can be selected by pressing arrow keys on a remote control to place  
20 highlight region 76 on top of a particular word or newsgroup message such as "newsgroup message 2" in FIG. 1D. The user can then select the highlighted word or newsgroup message by pressing a remote control enter (or select or OK) key.

25 System 10 allows users at user television equipment 20 to exchange television program-related newsgroup messages while watching television. The user may send newsgroup messages with system 10 without investing the effort involved in operating a personal  
30 computer and the software that is associated with it. In addition, system 10 allows users to retain the high video quality and channel range of television viewing while exchanging newsgroup messages.

As shown in FIG. 2A, a television program  
35 entity 80 may contain a message server 82 to store

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messages sent between user television equipment 88, 92, and any other such user television equipment. The television program entity may be a message facility associated with a television channel that receives and processes messages sent by users of user television equipment devices to a television program or channel. User television equipment devices 88 and 92 are connected via communications paths 90 and 94 respectively to television distribution facilities 84 that are in turn connected to television program entity 80 via communication links 86. Communications links 86 may be satellite links, telephone network links, fiber optic links, cable links, microwave links, combinations of such links, or any other suitable communications path.

Newsgroup messages may be handled on a server that is not located at the television distribution facility as shown in FIG. 2B. For example, newsgroup messages may be stored on server 91 and transmitted between user television equipment devices 97 and 98 via neighborhood nodes 95 and 96. User television equipment device 97 are connected to neighborhood node 95 via communications path 99, and user television equipment devices 98 are connected to neighborhood node 96 via communications path 101. Neighborhood nodes 95 and 96 decrease the bandwidth requirements on communications paths 99 and 101 for a given number of user television equipment devices 97 and 98.

Neighborhood nodes 95 and 96 may route television programming from television distribution facility 93 to user television equipment 97 and 98. Neighborhood nodes 95 and 96 may also route newsgroup messages between server 91 and user television equipment 97 and 98. Neighborhood nodes 95 and 96 may also route requests to perform many of the newsgroup message

system functions described herein from user television equipment 97 and 98 to server 91. Responses from server 91 are routed back to the appropriate user television equipment device via a neighborhood node.

5           As shown in FIG. 3, newsgroup messages can be distributed along communication paths 102 from one user television equipment device 100 associated with television distribution facility 104 to another user television equipment device 100 associated with that  
10 facility using a newsgroup server 106 located at the facility. The newsgroup messages sent between two or more user television equipment devices 100 associated with television distribution facility 104 may be stored on newsgroup server 106 in television distribution  
15 facility 104. An advantage to limiting operation of the newsgroup message system to individual television distribution facilities is that it allows individual cable system operators (for example) to control their systems, and it does not involve coordinating the  
20 transmission of newsgroup messages related to an on-going television program between different geographical areas or different time zones. If desired, newsgroup messages exchanged by user television equipment 100 can be stored by a newsgroup server 108 that is connected  
25 to television distribution facility 104 via communications network 110. Communications network 110 may be any suitable communications network such as the Internet, a public or private telephone network, a network involving satellite link or wireless links, a  
30 cable network, etc.

          The newsgroup message system may also be configured so that users at one or more of user television equipment devices 120 may exchange messages with one or more of user television equipment devices  
35 100. User television equipment 120 is associated with

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In addition, newsgroup messages may be transmitted between user television equipment 100 or 120 and user communications equipment 114. User communications equipment 114 is connected via communications network 110 to television distribution facilities 104 and 116. User communications equipment devices 114 can be any number of, e.g., personal computers that can send and receive newsgroup messages.

FIG. 4 shows an illustrative program guide display screen 130. A program listings region 144 may be provided. Each program listing 142 that has at least one related newsgroup may alert the user that such a newsgroup exists. Icon 140 may be used to alert the user that at least one newsgroup related to "X-Files" is available. If desired, any other suitable method of notifying a user that a newsgroup exist may be used. This includes the use of pop-up windows, pop-

up icons, audio signal, etc. Program listings 144 may be selectable. Highlight region 138 may be used to select individual program listings by using, for example, cursor buttons on a remote control. If  
5 desired, any other suitable device or method may be used to select selectable elements on a television display screen. For example, a remote control with a trackball and selection keys, a wireless keyboard, a wireless mouse, virtual reality gloves, etc. may be  
10 used to move a selection region such as a cursor or highlight region 138 among selectable elements of the television display screen, and to select any selectable element on the television display screen.

FIG. 4 shows highlight region 138 on program  
15 listing 142. The user may select listing 142 by pressing an enter button or the user may perform any other suitable task to accomplish a selection of program listing 142. Upon selection, a display screen showing more information about the particular program  
20 listing selected may be displayed. This information screen is illustrated in FIG. 5.

FIG. 5 shows information screen 146 that contains information on the selected program listing 142. In addition to providing additional information,  
25 information screen 146 may provide selectable elements such as icons 152, 150, 148 and 149. If the user selects icon 152, the user may be given the opportunity to set a reminder for this program, whereby an icon, a message, or any other suitable indication may appear at  
30 some predetermined time prior to the start of the television program. If the user selects icon 150, the user may be given the opportunity to schedule a recording of this program using, for example, videocassette recorder 28. If the user selects icon  
35 148, the user may be shown a list of newsgroups that

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relate to the present program. If the user selects icon 149 and if the program associates with the selected program listing is being currently broadcast, the program may be tuned to. These icons are merely illustrative. Any other suitable icons or any other selectable elements may be used for any other suitable features in addition to those shown, or in place of those shown. Any suitable combination and arrangement of these selectable elements may be used.

The user may use cursor keys on the remote control to navigate a highlight region 151 among any of the selectable elements on the display screens presented by the interactive television application. For example, by pressing a right cursor key on the remote control while highlight region 151 is on reminder icon 152 may cause highlight region 151 to move over record icon 150. A subsequent pressing of the right cursor key of the remote control may cause highlight region to move over icon 148. Yet another subsequent pressing of the right cursor key may cause highlight region 151 to move over reminder icon 152. This subsequent pressing of the right cursor key may, on the other hand, cause nothing to happen, or it may cause another option to be displayed on the screen (that was previously not displayed) and to be highlighted. This is an illustrative method of using a remote control's cursor keys to select selectable elements on the display screen. Any other suitable method may be used. The cursor keys of the remote control may be used to perform any and all navigation functions as described herein. Likewise, selection keys on the remote control may be used for any and all selection functions as described herein.

If the user selects icon 148, a separate screen may be presented to the user as illustrated in

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FIG. 6A. FIG. 6A shows newsgroup listing display screen 154. Selection of icon 140 in FIG. 4 may also cause display screen 154 to be displayed. Newsgroup listings 158, related to the selected program (i.e., "X-Files"), may be displayed. If desired, only selected newsgroups may be displayed to the user. For example, if particular newsgroups have not been active for a particular period of time, those newsgroups need not be listed. A newsgroup may be said to be "active" when a newsgroup message is posted to it. If desired, a newsgroup may be said to be "active" when a pre-defined number of newsgroup messages, greater than one, are posted to it. Using highlight region 156 to navigate among each newsgroup listing, the user may select a particular newsgroup listing 157. If selected, the newsgroup messages contained in the selected newsgroup may be displayed.

Because a large number of newsgroup messages may be stored in a particular newsgroup, the user may be given the ability to display only the newest newsgroup messages. The newest newsgroup messages may be the newsgroup messages for that hour, for that day, etc. If desired, the newest newsgroup messages may be any unread newsgroup messages in the selected newsgroup. This is merely illustrative, any other suitable technique may be used to allow the user to reduce the number of newsgroup messages displayed. The user may select such an option by selecting an icon. The user may place a highlight region 162 on the display new icon 161, and press an enter key, or perform any other suitable task to make a selection.

If the user wishes to view all of the newsgroup messages available for a particular newsgroup, the user may place highlight region 162 over icon 160 and select icon 160. Once the user selects one of icons 160, 162,

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If desired, advertisement 166 may be displayed. Advertisement 166 may be any random advertisement for a program, product, or service. If desired, advertisement 166 may be an advertisement for a program, product, or service related to the program for which listings 158 are being displayed. For example, as illustrated, since the newsgroup listings 158 relate to the X-Files, a science fiction show about alien conspiracies, advertisement 166 may relate to a program about aliens (e.g., E.T.). If desired, advertisement 166 may relate to newsgroups (e.g., to promote a particular newsgroup). If desired, advertisement 166 may be interactive. The user may be allowed to select advertisement 166 using any suitable means in accordance with the present invention. If advertisement 166 is selected, an information screen associated with the product, program, or service being advertised may be displayed to the user (e.g., similar

If desired, advertisement 166 may be displayed. Advertisement 166 may be any random advertisement for a program, product, or service. If desired, advertisement 166 may be an advertisement for a program, product, or service related to the program for which listings 158 are being displayed. For example, as illustrated, since the newsgroup listings 158 relate to the X-Files, a science fiction show about alien conspiracies, advertisement 166 may relate to a program about aliens (e.g., E.T.). If desired, advertisement 166 may relate to newsgroups (e.g., to promote a particular newsgroup). If desired, advertisement 166 may be interactive. The user may be allowed to select advertisement 166 using any suitable means in accordance with the present invention. If advertisement 166 is selected, an information screen associated with the product, program, or service being advertised may be displayed to the user (e.g., similar

to the one shown in FIG. 5). If desired, advertisement region 166 may change as a predetermined period of time passes. This is merely illustrative. Any other suitable features for advertisement 166 may be implemented.

Alternatively, the newsgroup list may include information on each group, such as the number of newsgroup messages, the number of unread newsgroup messages, etc. This is illustrated in FIG. 6B. A newsgroup column 163 may be provided that shows the name of the newsgroup. A number of messages column 165 may be provided that shows the number of newsgroup messages in the corresponding newsgroup. These may be the total number of newsgroup messages, the total number of new newsgroup messages, etc. An unread messages column 167 may be provided that shows the number of unread newsgroup messages (out of the number of messages) by the user. A type column may be provided that shows what type of newsgroup (e.g., Usenet, proprietary, etc.) the corresponding newsgroup is. Any other suitable information about the newsgroups may be displayed.

Once a newsgroup listing 157 is selected, a newsgroup message screen, listing the messages in the selected newsgroup, may be presented. FIG. 7 illustrates a newsgroup message screen 170. A newsgroup message listings 176 may be displayed that lists predetermined fields of information for each displayed newsgroup message listing. For example, a subject field 172 and a sender field 174 may be provided to display the subject and sender of each particular newsgroup message, respectively. If desired, any other suitable information fields may be provided. These information fields may be chosen by the user in a set-up operation of the set-top box, or

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through any other suitable means. If desired, the  
information fields may be controlled by the television  
distribution facility and not under the control of the  
user. If desired, field bars 172 and 174 may be  
5 selectable. Selection of one of the bars may change  
the order in which newsgroup message listings 176 are  
displayed. For example, if sender bar 174 is chosen,  
the newsgroup messages may be arranged in alphabetical  
order of the text appearing in the sender field of each  
10 newsgroup message. If a date field is provided, the  
date field may be selected to arrange the message in  
chronological order. If desired, if a field bar is  
selected once, the ordering may go one way (e.g.,  
ascending dates of the field is a date field) and if  
15 the same field bar is selected again, without any  
intermittent selections of other field bars, the  
ordering may go in the opposite direction (e.g.,  
descending dates if the first ordering was in ascending  
dates). Selection may be made using cursor buttons on  
20 the remote control to navigate highlight region 180  
over field bars 172 and 174, and a select button may be  
pressed when highlight region 180 is over the desired  
field bar. Any other suitable use of information  
fields may be implemented. This includes displaying  
25 any other suitable information fields, such as time  
sent, e-mail address, etc.

The information displayed in newsgroup  
message listings 176 may be primarily composed of  
information provided in the headers of the associated  
30 newsgroup messages. These headers may include  
information such as sender name, sender e-mail address,  
date sent, time sent, routing information,  
identification information, etc. In the case of Usenet  
messages, standards such as the RFC1036 standard

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specify what information must be included in the  
headers of newsgroup messages posted to Usenet servers.

5 Newsgroup message listings may be filtered by  
the interactive television application. For example,  
previously read newsgroup messages may be filtered from  
the newsgroup message listings. Newsgroup messages in  
a particular thread may be filtered out. Newsgroup  
messages from another particular user may filtered out.  
Any suitable desired filtering specification may be  
10 used. The filtering may be performed based on user  
input. For example, the user may enter an options  
screen that may allow the user to filter based on  
several choices, including keywords, threads, senders,  
dates, etc. These preferences may then be saved for  
15 future reference by the interactive television  
application. This is merely an illustrative embodiment  
of the filtering feature. Any other suitable  
implementation or arrangement may be used.

20 If there are more newsgroup message listings  
176 than can fit on the display screen 170 at one time,  
a scroll bar 182 may be displayed to indicate that more  
listings are available. The user may view the  
additional listing by selecting scroll bar 182.  
Alternatively, the user may view the additional  
25 listings by simply scrolling to the bottom of the  
currently displayed listing and then issue another  
scroll down command so that the top listings may  
disappear as the listings previously not seen appear at  
the bottom. This is merely illustrative. Any other  
30 suitable method for displaying newsgroup message  
listings that do not fit on a display screen may be  
used.

If desired, other suitable views of newsgroup  
message listings may be provided. For example, FIG. 8  
35 illustrates another way in which newsgroup message

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listings may be displayed. Newsgroup message listings  
display-screen 184 shows newsgroup message listings 186  
arranged in a threaded format. That is, each message  
is shown relative to its position in a chain of  
5 replies. For example, newsgroup message 188 may be the  
beginning of a new chain of newsgroup messages  
(indicated by the fact that it is not indented).  
Newsgroup message 190 is a reply to newsgroup message  
188 (indicated by the fact that it is indented one  
10 time). Similarly, newsgroup message 192 is a reply to  
newsgroup message 188. Newsgroup message 194 is a  
reply to newsgroup message 192 (indicated by the fact  
that it is indented twice). Newsgroup message 196, not  
being indented at all, is the beginning of a new series  
15 of newsgroup messages. This view of newsgroup message  
listings is merely illustrative. Any other suitable  
view may be used.

If desired, the views may be changed by the  
user. This may be accomplished through the activation  
20 of an options screen, where the user selects a new type  
of view. The views may change automatically, after  
selection of the new view. Or, if desired, the view  
may change the next time a newsgroup message listings  
display is viewed. Any suitable method of changing  
25 views may be used.

Each newsgroup message listing may be  
selectable. Highlight region 198 may be provided to  
the user to navigate among newsgroup message listings  
186. When highlight region 198 is on a newsgroup  
30 message the user wishes to view, the user may select  
that listing. For example, if the user wishes to read  
the content of the newsgroup message represented by  
newsgroup message listing 200, the user may move  
highlight region 198 over newsgroup message listing 200

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and select it. This may cause newsgroup message display screen 202 of FIG. 9 to be displayed.

Newsgroup message display screen 202 may display newsgroup message body 206, which is the newsgroup message that was posted by the sender. Header 204 may be displayed as well. Header 204 may contain sender information, the subject, date sent, and time sent. Header 204 is illustrative. Any other suitable information may be used in any desired combination.

Various options may be provided to the user in newsgroup message display screen 202. For example, reply icon 208, if selected, may allow the user to post a reply message to the currently displayed newsgroup message on the newsgroup message server. Save icon 210, if selected, may allow the user to save the currently displayed newsgroup message. The newsgroup message may be saved locally in memory 25 of set-top box 26. If desired, the newsgroup message may be saved to a computer coupled to set-top box 26. If desired, any other suitable method of saving a message may be used. Forward icon 212, if selected, may send the currently displayed message to another particular user. This may be accomplished through the use of e-mail, instant messaging, or any other suitable method of message transmission. These features are described in commonly assigned U.S. Patent Application 09/356,245 (Pamela L. McKissick, et al.), which is hereby incorporated by reference in its entirety. Post icon 214, if selected, may allow the user to post a new newsgroup message in the present newsgroup forum. The difference between reply icon 208 and post icon 214 may be that when replying, the new newsgroup message may be threaded as a reply to the currently displayed message. Posting, however, may start a new thread of newsgroup

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messages. Next icon 216, if selected, may cause the  
next newsgroup message from the listing of newsgroup  
messages the currently displayed newsgroup message was  
selected from, to appear. Likewise, previous icon 218,  
5 if selected, may cause the previous newsgroup message  
from the listing of newsgroup messages the currently  
displayed newsgroup message was selected from, to  
appear. Thread icon 220, if selected, may cause the  
next newsgroup message in the thread of newsgroup  
10 messages to which the currently displayed newsgroup  
message belongs to appear. Delete icon 209, if  
selected, may cause the currently displayed newsgroup  
message to be removed from any listing the current user  
may view (although the current newsgroup message will  
15 still remain in the newsgroup for other users to view).  
Block thread icon 211, if selected, may cause the  
entire thread that the presently displayed newsgroup  
message belongs to be removed from any listing the  
current user may view (although the thread will still  
20 remain in the newsgroup for other users to view).  
Block sender icon 213, if selected, may cause all  
newsgroup messages posted by the sender of the  
currently displayed newsgroup message to be removed  
from any listing the current user may view (although  
25 the newsgroup messages posted by the sender will still  
remain in the newsgroups for other users to view). The  
options provided in FIG. 9 are merely illustrative.  
Any other suitable options may be provided instead of,  
in addition to, or in combination with any of those  
30 presented.

Program guide screen 130 in FIG. 4 provides  
the user with newsgroup search icon 132. If newsgroup  
search icon 132 is selected, newsgroup search screen  
230 in FIG. 10 may be displayed to the user. Newsgroup  
35 search screen 230, may, if desired, be displayed in the

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form of an overlay window, which overlays program guide screen 130. If desired, all newsgroup interactions as described herein may be accomplished through overlay windows, including displaying newsgroup message listings, newsgroup message contents, etc. For brevity, newsgroup related displays are described in terms of display screens.

5 Newsgroup search screen 230 may allow the user to enter keyword(s) 234 into text box 232 in accordance with the present invention. After pressing an "enter" button on the remote control or selecting enter icon 242, a list of available newsgroups that are associated with keyword(s) 234 may be displayed in results area 236. Highlight region 238 may be  
10 navigated by the user among the newsgroup listings of results area 236. If the user wishes to view the newsgroup message listings of the newsgroup represented by newsgroup listing 240, the highlight region may be placed over newsgroup listing 240 and a selection may  
15 be performed. This may result in a screen such as screen 170 of FIG. 7 being displayed in accordance with the present invention.

Newsgroup search screen 230 and the arrangement of elements provided therein is merely  
25 illustrative. Any other suitable arrangement may be used, including the use of previously used keywords, suggested keywords based on user preferences, etc. If desired, a search screen for newsgroup messages in a particular newsgroup forum, or among multiple newsgroup  
30 forums may be similarly implemented and arranged.

Program guide screen 130 in FIG. 4 provides view favorites icon 134, which, if selected, may cause display screen 250 in FIG. 11 to appear. Display screen 250 may contain favorite newsgroup listings 252.  
35 The user may move highlight region 256 among the

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favorite newsgroup listings 252 and may select any of  
the listed favorite newsgroups in accordance with the  
present invention. Once selected, the newsgroup  
messages for the selected newsgroup may be displayed in  
5 accordance with the present invention.

Text box 254 may be provided to allow the  
user to enter additional newsgroups to add to the  
newsgroup favorites list 252. The user may enter the  
name of a newsgroup to add in text box 254. If  
10 desired, the user may be given additional opportunities  
to add newsgroups to a favorite newsgroups list. For  
example, in FIG. 12A, newsgroup message listings screen  
260 may provide the user with a selectable element 264  
that would allow the newsgroup whose newsgroup messages  
15 are listed in newsgroup message listings 262 to be  
added to the favorites list. If desired, anytime the  
user is viewing the newsgroup message listings of a  
particular newsgroup, an "Add to Favorites" button may  
be pushed on the remote control to add that particular  
20 newsgroup to the favorites list.

FIG. 12B shows another way in which  
newsgroups may be added to a favorites list. Newsgroup  
listing display screen 266 may display newsgroup  
listings 268. If the user wishes to add newsgroup  
25 listing 270 to the favorites list, the user may place  
highlight region 271 over newsgroup listing 270 and may  
select icon 272.

These are only illustrative ways in which  
newsgroups may be placed into a favorite newsgroups  
30 listing. Any other suitable way of providing the user  
with opportunities to build a favorite newsgroup  
collection may be used.

Each member of a household may have his or  
her own favorite newsgroups list. To identify the  
35 current user, the interactive television application

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In one of the embodiments of the present invention, the user may be allowed to view television programming and interact with newsgroups, simultaneously. This is illustrated by display screen 280 in FIG. 13. A television program 282 may be displayed in a section of display screen 280 while newsgroup listings 286 is displayed in another section of display screen 280. Newsgroup listings 286 contain newsgroup listings that are related to the television program 282. For example, if television program 282 is an episode of the X-Files, then the newsgroups listed in newsgroup listings 286 may all have something to do with the X-Files or related subject matter. An advertisement 284 may also be provided, which may be related to television program 282, or which may not necessarily be related to television program 282. Advertisement 284 may be interactive or it may be passive. Advertisement 284 may be in the form of text, graphics, video, or any other suitable form.

Once a user selects a newsgroup message from  
35 newsgroup message listings 292, the content of the

message may be displayed as illustrated in FIG. 15A.  
Display screen 296 may display a television program 306  
while simultaneously displaying newsgroup message  
content 308. If desired, a message header 310 may also  
5 be displayed.

If desired, newsgroup messages may contain  
files. The files may contain video, text, graphics,  
audio, or any other suitable digital content. When  
reading a message, the file may be represented by an  
10 icon such as video file icon 298. The user may open  
the file by selecting the file icon in accordance with  
the present invention. For example, if the user wishes  
to view the video clip described in newsgroup message  
308, the user would select video file icon 298, which  
15 may in turn open an application capable of playing that  
particular type of video file. In the illustrated  
example, the video clip stored in the video file may  
begin playing as shown in FIG. 16. The video clip 312  
may be played in an overlay or it may take the place of  
20 message 308. If desired, the video clip may be placed  
in an unused portion of the screen so that message 308,  
television program 306, and video clip 312 are all  
simultaneously viewable. If video clip 312 has  
associated audio, then the audio associated with  
25 television program 306 may be muted while the video  
clip audio is played. If desired, the active audio may  
be selected by the user using an options feature.

If the video clip took the place of other  
content of the display screen, once it the video clip  
30 is finished playing, it may disappear, allowing the  
other content to be displayed again. This may result  
in display screen 296 being shown after the video clip  
has ended.

Newsgroup message 308 may also contain links  
35 to web pages. Link 300 is illustrated. The user may

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select link 300, which may result in a web browser being activated. The browser may automatically open the web address specified by link 300. If desired, other types of content may be transmitted within a newsgroup message. For example, applets (e.g., Java, Visual Basic, etc.) may be transmitted. An icon may represent each applet. If selected, the applet may be loaded and run from the set-top box. Typically, such applications, animations, etc. FIG. 17 illustrates applet 316 and television program 314 being displayed simultaneously.

If desired, when a user opens a newsgroup message for viewing, any attached files may automatically be opened by their respective applications. For example, FIG. 15B shows the same newsgroup message that FIG. 15A shows. The newsgroup message in FIG. 15B, however, has automatically activated a video playing application 297 and has activated a web browser 301 because a video file was attached to the newsgroup message and a web link was provided in the newsgroup message respectively. These applications may be provided while television program 303 is playing in a reduced sized window. Video application 297 may also provide a play icon 299 so the user may play the video file attached to the newsgroup message at his or her convenience. Either automatic activation of attached files and their respective applications or manual activation of attached files and their respective applications, as illustrated in FIGS. 15B and 15A, respectively, may be selected by the user in a set-up routine based on preference. If desired, certain types of files may be chosen to be opened manually, while other types of files may be chosen to

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be opened automatically. Any such suitable arrangement or implementation may be used.

Another feature of the newsgroup feature of the present invention is allowing the user to quickly and easily access newsgroups while watching television programming. If desired, the user may view a television program in full screen. If, at any time, the user wishes to access the newsgroup feature of the interactive television application, the user may be given the ability to do so. For example, if the user is watching X-Files in full screen and wishes to read newsgroup messages while continuing to watch X-Files, the user may issue a view newsgroups command. This command may take the form of pressing a "News" button on the remote control, wireless keyboard, or any other suitable device. If desired, the user may enter an options menu by pressing an "options" button on the remote control and selecting an option to view newsgroups from the options menu. These methods of allowing a user to activate the newsgroup features of the present invention are merely illustrative. Any other suitable method may be used. Once the newsgroup feature is activated, the user may use the feature in accordance with the present invention.

FIG. 18 illustrates some of the steps for using the newsgroup feature. At step 320, a user may issue a view newsgroups command (e.g., using the remote control) for a selected television program. The set-top box may query the newsgroup server at step 322 (e.g., at the television distribution facility) as to whether there are any newsgroups associated with the selected television program. If there is at least one associated newsgroup, then at step 324 the associated newsgroups are displayed to the user and the user may choose a newsgroup from among those available (step

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328). If the user selects a newsgroup, the newsgroup  
messages in the selected newsgroup may be listed at  
step 330 and the user may choose a newsgroup message  
from among those available (step 332). If the user  
5 selects a newsgroup message then the selected newsgroup  
message may be displayed at step 334. If the newsgroup  
message contains any files, the user may open them in  
accordance with the present invention.

If the user wishes to view another newsgroup  
10 message, the user may select a "next" option (e.g.,  
from a selectable element from the screen, from  
pressing a button on the remote control, etc.) or a  
"previous" option, or any other suitable option for  
traversing the newsgroup messages of the currently  
15 selected newsgroup. If desired, the user may select an  
option to display the list of newsgroup messages again  
where the user may choose another newsgroup message to  
view (step 332). Similarly, at step 332, the user may  
decide to view a newsgroup message from a newsgroup  
20 different from the currently selected newsgroup. The  
user may, at that point, select a selectable element,  
such as an icon, from the display screen. This may  
cause the newsgroup list to be displayed again,  
allowing the user to select another newsgroup (step  
25 328).

If, at step 322, it is determined that there  
are no associated newsgroups with the selected  
television program, then any suitable response may be  
given. The response may be in the form of displaying  
30 an error message, displaying the favorite newsgroup  
list for that user, displaying a search form, or doing  
any other suitable action if there are no associated  
newsgroups. If desired, an option to create a new  
newsgroup related to the selected television program  
35 may be provided.

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The interactive television application may also allow the user to go directly to a newsgroup option, not directly related to the selected television program or to the television program being viewed. In that case, the interactive television application may allow the user to continue watching television while accessing any available newsgroup related to any available topic. FIG. 19 illustrates this feature.

Television program 340 is an episode of Friends, while

the newsgroup 342 being viewed simultaneously is about patents. More generally, any screen in the interactive television application may have a video window. The video shown in the video window need not necessarily be  
5 related to any of the content of the display screen in which the video window is displayed. The video window may be used to display the television program (or television channel) the user was currently watching (or tuned to). For example, FIG. 4 may include a video  
10 window displaying the current television program that was being viewed. This video window may be carried through the display screens shown in FIGS. 5, 6A, 6B, and any other subsequent screens.

If desired, not only may each television  
15 program, program guide category, etc. have associated newsgroups, but the newsgroups may be cross-referenced as well. That is, each newsgroup (or a selection of newsgroups) may have television programs, program guide categories, actors, directors, etc. associated with it.  
20 This feature is illustrated in FIG. 20. A bipartite graph, with newsgroups 346 on one side and television programs 348 on the opposite side is used to illustrate the cross-referencing of newsgroups with television programs. For example, newsgroup 350 may be cross-  
25 referenced to television program 360. Newsgroup 352 may be cross-referenced to television programs 356, 362, and newsgroup 354. Newsgroup 354 may be cross-referenced to newsgroup 352, and television programs 358, 360, and 362. Newsgroups may be cross-referenced  
30 to any other suitable content. Television programs were used for illustrative purposes. The user may be given the ability to access anything that a newsgroup or newsgroup message is cross-referenced to. For example, FIG. 21 shows an illustrative display screen  
35 for viewing a newsgroup message. The user may be given

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a list 365 of cross-reference content that may be  
related to the current newsgroup or newsgroup message.

For example, in the illustrated example, a newsgroup  
devoted to The Dukes of Hazard is being accessed by the  
5 user. A cross-reference list 365 may be provided that  
lists any other available content related to The Dukes  
of Hazard. For example, a program listing 366 for the  
show itself may be provided. The program listing 366  
may be selectable. If the user selects program listing  
10 366, an information screen may be displayed, giving the  
user additional information about the television  
program. A remind icon 368 and record icon 370 may  
also be provided adjacent to program listing 366 that  
would allow the user to set a remind or program a  
15 recording, respectively, of the television program  
represented by programming listing 366.

Also available via the cross-reference  
feature may be a web link 372 that may direct the user  
to a web page related to The Dukes of Hazard. The user  
20 may select web link 372, which may cause a web browser  
to be activated and displayed, showing the contents of  
<http://www.dukesofhazard.com>.

Special television events may also be cross-  
referenced. Cross-reference list 365 may include a  
25 television program listing such as television program  
listing 374 related to a television special on The  
Dukes of Hazard. If desired, the user may be given the  
opportunity to set a reminder or to program a recording  
of this television program. This may be accomplished  
30 by allowing the user to select set remind icon 376 or  
record icon 378, respectively.

The cross-reference feature of FIG. 21 is  
merely illustrative. Any other suitable arrangement  
may be used. If desired, the user may access the  
35 cross-reference material by pressing a "Cross-

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Reference" button on the remote control, causing an overlay to appear, etc. If desired, the cross-reference may be accessed by the user when the user is viewing any other type of content (e.g., while watching a television program, while browsing the web using set-top box 26, etc.). In that case, the cross-reference may display other content related to the subject matter of the content currently being viewed.

Cross-referencing may be done automatically or manually. When done automatically, the cross-reference process may be performed once an hour, once a day, once a week, or at any other periodic cycle. The cross-referencing may be done for a variety of different subject matters. The results of the cross-referencing may be used to update a database of cross-reference information that may be stored in newsgroup equipment 22 in television distribution facility 16. The database of cross-reference information may likewise be stored and updated at any other suitable location, such as main facility 12, or user television equipment 20. If desired, the cross-referencing may be performed upon activation by personnel at the television distribution facility or any other suitable location. The personnel need not be at the same location as the cross-reference database, but may access and activate routines from a remote location.

If desired, cross-referencing may be performed on a continuous basis. When cross-referencing is performed on a continuous basis, a server (which may be part of newsgroup equipment 22) may be constantly monitoring various sources of content and grouping related items among the various sources using appropriate data structures (e.g., graphs, adjacency matrices, etc.).

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If desired, cross-referencing may take place on demand. For example, as a user accesses a content related to a particular subject matter, set-top box 26 may send a cross-reference request to the newsgroup equipment 22 in television distribution facility 16 (or other equipment in television distribution facility 16 or elsewhere). In response, a cross-referencing process may be executed at television distribution facility 16 (or elsewhere), sending to set-top box 16 the list of related content from among the various sources looked at during the cross-referencing process. The cross-referencing process may access information stored at other locations besides television distribution facility 16. For example, main facility 12 may be accessed to search through program guide database 14 in the cross-referencing process.

A simplified model of the above-mentioned cross-referencing process is illustrated in FIG. 22. At step 380, a cross-referencing process is activated (e.g., as a result of a periodic cycle). The cross-referencing process may, at step 382, search through appropriate sources (e.g., program guide database 13 at main facility 12, Usenet databases on the Internet, etc.) looking for content related to a particular subject matter (e.g., The Dukes of Hazard). At step 384, a database of cross-reference information may be updated to reflect the results of the search performed at step 382. At step 386, users who are viewing a particular newsgroup, television program, information about a television program, etc. may be given the cross-reference information related to the subject matter of the content they are viewing. This cross-reference information may take the form of cross-reference list 365 or any other suitable form. This is an illustrative model for the cross-referencing feature

of the interactive television application. Any other  
suitable model for cross-referencing may be used.

Another feature of the interactive television  
application relates to parental control options the  
5 user may have with regard to newsgroups. For example,  
newsgroups may be rated with parental control ratings.  
These ratings may be similar to those used for  
television programs or similar to those used for  
movies. If desired, any suitable rating system may be  
10 used for newsgroups. FIG. 23 illustrates a rating  
system that may be used. The ratings may be added  
manually or automatically. If added automatically, the  
newsgroup messages within a newsgroup that is being  
rated may be parsed to identify the language being  
15 used. For example, certain keywords may be searched  
for, and if a predetermined number of occurrences of  
any of these words are found, the rating for the  
newsgroup may be adjusted accordingly. This is merely  
an illustrative method for automatically rating  
20 newsgroups and is outlined in FIG. 24. Any other  
suitable method may be used.

If newsgroups are rated manually, personnel  
at the television distribution facility may manually go  
through the newsgroup messages in a particular  
25 newsgroup to objectively determine the most appropriate  
rating for the newsgroup (preferably based on certain  
guidelines). If desired, the parents of a household  
may manually define ratings for newsgroups based on  
their own subjective beliefs. If desired, any other  
30 suitable method for manually rating newsgroups may be  
used.

If desired, parents may block any newsgroup  
that is a particular rating from being viewed by  
children in the household.

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In another embodiment, newsgroups may be categorized as being either moderated newsgroups or unmoderated newsgroups. Moderated newsgroups may have human moderators who receive all newsgroup messages before they are posted for public viewing. Each newsgroup message may be examined and edited by the moderators to sustain a content rating that is appropriate for a general audience. If desired, newsgroup moderators may moderate particular newsgroups for different ratings and edit newsgroup message content accordingly. The moderators may also maintain the newsgroups so that only those messages that are related to the subject matter of the newsgroups may be posted. In addition, moderators may check any attachments to newsgroup messages (e.g., video clips, audio, applets, text, graphics, etc.). Any inappropriate attachments may be removed by the moderators.

The moderated newsgroup system is illustrated in FIG. 25. The user television equipment 398 may access moderated newsgroups 390 and unmoderated newsgroups 392 via a communications network 396. If desired, communications network 396 may include one or more television distribution facilities. Moderators 394 may access moderated newsgroups 390 via communications network 396, using a connection 400. Connection 400 may include a personal computer coupled to moderated newsgroups 390 using an Internet connection, a modem connection, local area network, or any other suitable connection. If desired, moderators 394 may be directly connected to the server or servers storing moderated newsgroups 390. As users (e.g., from user television equipment 398, from personal computers via an Internet connection, etc.) post newsgroup messages to moderated newsgroups 390, the moderators

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may intercept the newsgroup messages, make the appropriate changes, and may then post the newsgroup messages in the designated newsgroups. Unmoderated newsgroups 392 may also be provided via communications network 396. This is merely an illustrative arrangement of moderated newsgroups and unmoderated newsgroups. Any other suitable arrangement may be used.

If desired, an automatic filter may be used to filter newsgroup messages to conform to a particular rating. FIG. 26 shows unfiltered newsgroup messages 402 being fed into automatic newsgroup message filter 404. Automatic newsgroup filter 404 may parse through the newsgroup messages, searching for particular keywords that may be inappropriate for the particular rating of the newsgroup (or newsgroups) with which each newsgroup message is associated with. Automatic filter 404 may remove these keywords or replace them with less offensive synonyms or symbols (e.g., asterisks). If desired, automatic filter 404 may remove the newsgroup message (or move it to a related unmoderated newsgroup) if a predefined threshold of an allowable number of inappropriate words is exceeded. Newsgroup messages 406 may be outputted by automatic filter 404 with a high reliability that the language meets the predetermined rating for the associated newsgroups. This is merely an illustrative automatic newsgroup message filter. Any other suitable newsgroup message filter may be used. For example, a filter that simply removes any inappropriate words, without regard to the rating of associated newsgroups, may be used. In addition, the automatic filter need not be used on all newsgroups, but any desired set of newsgroups.

The parental control feature may be combined with the other parental control features of the

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application, or it may be a separate feature. For example, if newsgroups are given ratings comparable to movies or television shows, then the application (e.g., the program guide) may block access to newsgroups with the same ratings as movies or programs that are blocked. Access to parentally controlled newsgroups may be allowed, for example, to a user who knows a parental control code.

A parent may also specify that the application should block a specific newsgroup or the parent may also specify that the application should block a list of newsgroups. If desired, any newsgroup or other feature of the interactive television application related to a particular category of programming, topics, directors, actors, etc. may be blocked. In addition, the parent may specify a list of keywords to block, whereby any newsgroups containing newsgroup messages containing the specified keywords may be blocked.

FIG. 27 shows an illustrative display screen 408 which may be displayed to a user who does not have access to view adult material. Alternatively, perhaps the parents set the keyword "Playboy" to be parentally controlled. Since television program area 410 is tuned to the Playboy Channel, access to the video for the Playboy Channel may be restricted based on the parental control settings. Similarly, related newsgroup area 412 may be restricted from displaying newsgroups related to Playboy and related newsgroup area may be restricted from providing access to newsgroups related to Playboy. If desired, the newsgroup names may be displayed, but the listings may not be selectable. Other content, such as web content may be blocked. For example, web page link area 414 may be restricted from providing a link to the web pages related to Playboy.

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The parental control features for the interactive television application is merely illustrative. Any other suitable arrangement may be used.

Another aspect of the newsgroup feature of the interactive television application includes notification. A user can ask to be notified (e.g., via e-mail) when a new newsgroup message is posted to a particular newsgroup. The notification may result from any new newsgroup message, from a new newsgroup message from a particular user, from a newsgroup message with a particular subject, or from a new newsgroup message with specific keywords. Any other suitable criteria may be used for notification. FIG. 28A illustrates how the user may instruct the interactive television application to send a notification once new newsgroup messages are posted. The user may activate the notification feature by selecting a checkbox 418 (e.g., by placing a highlight region 416 around checkbox 418 and hitting a "select" button on the remote control). This is an illustrative method of activating the notification feature. Any other suitable method may be used.

FIG. 28B shows one way in which the user may be notified of new newsgroup messages. A pop-up window 420 may appear over display screen content 422 when a new newsgroup message has been posted in a newsgroup that the user had requested notification for. Pop-up window may also contain a checkbox 421, which the user may select if the user no longer wishes to be notified of new newsgroup messages being posted to that particular newsgroup. This avoids the problem of having too many notifications appearing and becoming a nuisance.

E-mail may also be used to notify the user of new newsgroup message. FIG. 28C shows an e-mail

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message listing 424 provided by the interactive television application to notify the user of new newsgroup messages. The user may select e-mail message listing 424. The result of the selection may be that a screen such as that shown in FIG. 28D is displayed. FIG. 28D shows what the content of the selected e-mail message may look like. A note stating that a new message has been posted to the particular newsgroup may be used. A link 426 may also be provided. If the user selects link 426, the newsgroup application may be activated and the new newsgroup message may be opened via the newsgroup application. If desired, the new newsgroup message may be contained entirely within the e-mail notification as illustrated in FIG. 28E. Checkboxes, such as checkbox 421 may be provided within the emails to avoid the nuisance of having too many notifications. These are illustrative methods by which the user may be notified of new newsgroup messages. Any other method of notification may be used. If desired, for example, each user, or each household may have a "home page" that serves as a main page for the interactive television program. An icon may appear on the home page that informs the user that there are new newsgroup messages in a particular newsgroup, in any of the newsgroups in that user's favorite newsgroup list, etc. Any such notification method may be used.

The newsgroup feature of the interactive television application may allow links to television program, television channels, television categories, etc. to be linked in newsgroup messages. FIG. 29 shows a newsgroup message that incorporated some of these links. For example, if link 428 is selected, the interactive television application may tune the set-top box to a FOX channel. If link 430 is selected, the interactive television application may tune to the

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special show being referred to, or if the show is not currently airing, an information screen may be displayed about the special show. If link 432 is selected, then the interactive television application may provide the user with a screen including content and links related to romance. This is merely illustrative. Any other suitable method for providing a user direct access to referenced material from newsgroup messages may be used.

Furthermore, if the interactive television application supports such features, the user may be given the ability to set reminders, purchase products, set parental controls, add to a profile, schedule a recording, or otherwise act on a referenced program channel or other referenced programming item.

The interactive television application may allow the user to reply to a newsgroup message or post a new newsgroup message. A newsgroup message posted by the user may include text, but may contain other content if desired. FIG. 30 is an illustrative system, whereby the user may post a newsgroup message 444 to a newsgroup server 452. Using an input interface 440 (e.g., wireless keyboard, on-screen keyboard, etc.), the user may enter text into the message body of the newsgroup message 444. Newsgroup message 444 may be stored locally in the memory of set-top box 442. If desired, the user may add additional content to newsgroup message 444 using media 446. For example, media 446 may be audio/video clips previously recorded by the user on a local or remote digital server. The clips may also be available from a library of audio/video clips provided by the interactive television application. If desired, media 446 may also include imported media, such as graphics, video, audio, etc., if the platform has such a capability (e.g.,

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having a connection 448 capable of interfacing with an IEEE 1394 port for retrieving data from a camcorder or from a digital camera). Any other suitable source of media 446 may be used.

5           A user may attach a reference to a particular program, channel, or other programming entity to a newsgroup message. A recipient of that newsgroup message may be able to easily access a description of that item, and act on it (e.g., set a reminder,  
10 purchase a product, lock, tune, record, etc.). A recipient of that newsgroup message via the Internet access may just see a text description of the item. References may be attached to a newsgroup message by the user in any suitable way. For example, as the user  
15 is viewing content provided by the interactive television application, such as a television program, the user may issue a command (using, for example, a "news" button on the remote control) that would give the user the option of creating a new newsgroup message  
20 with a reference to the television program currently being viewed. This is illustrated in FIG. 31. The user may be viewing a television program 504 during which time the user may press a "news" button on the remote control that causes one or more options to  
25 appear, perhaps in the form of listings in an overlay 500. The user may choose one or more listings 502 that would allow the user to create a new newsgroup message that may have the selected references attached to it.

Alternatively, references may be attached by  
30 the user using codes in the newsgroup message itself. For example, hypertext markup language (HTML) may be used in the newsgroup messages whereby a link may be created using an "HREF" statement or a similar statement. This is illustrated in FIG. 32. A link 506  
35 may be encoded into text 508 so that when another user

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is reading the newsgroup message and selects text 508,  
the content of link 506 may be displayed. If desired,  
other options such as a target option may be provided  
which may allow the author of the newsgroup message to  
5 specify a destination for the content of link 506 once  
it has been selected. Target 510 may specify that the  
content of link 506 be displayed in a new window. Any  
such use of coding or programming may be used by the  
user to write newsgroup messages. Furthermore, any  
10 such suitable method of attaching references to  
newsgroup messages may be used.

If desired, the interactive television  
application may produce the HTML (or other suitable  
code). This may allow the user to create newsgroup  
15 messages containing enhanced features without the need  
to know how to code such features and without the need  
to know the particular syntax of the language being  
used to code such features. This aspect of the  
interactive television application may be implemented  
20 by allowing the user to use options (e.g., in the form  
of icons, menu listings, etc.) to direct the  
interactive television application to create and embed  
appropriate code.

FIG. 33 illustrates how the user may select  
25 option icons 520, 522, 524, 526, 528, 530, and 532 to  
insert enhanced features into a newsgroup message. The  
user may type the newsgroup message 536 in text area  
534. If the user wishes to incorporate enhanced  
features into the newsgroup message, the user may  
30 select an icon from options area 538. For example, if  
the user wishes to insert a link to FOX, the user may  
select add link icon 520. This may bring up an overlay  
as illustrated in FIG. 33B.

Overlay 540 may prompt the user to enter the  
35 link 542 the user wishes to insert into the newsgroup

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message 536. Other options may be provided to the user, such as allowing the user to select a target for the content of link 542. For example, checkboxes 542 and 544 may allow the user to select to display the content of link 542 in a new window on the display screen or in the current window, respectively. As the user enters information, the code may be automatically produced by the interactive television application. The code may be automatically displayed in text area 534. For example, after the user enters link 542, code 546 associated with link 542 may be automatically generated and displayed by the interactive television application. Likewise, after the user selects checkbox 542, the corresponding target code 548 may be automatically generated and displayed by the interactive television application. If desired, any text, including code, may be edited by the user.

This is an illustrative method in which the interactive television application may provide the user with tools in which to create newsgroup messages. Any other suitable method may be used to provide these tools. Furthermore, any other suitable tools may be provided other than, or in combination with, those illustrated.

A user may be able to request that an existing newsgroup (e.g., one that is accessible via the Internet) be made available to the interactive television application. A user may also be able to create a new newsgroup that is accessible to the public. This new newsgroup may be hosted on a server related to the interactive television application, located, for example, at the television distribution facility.

FIG. 34 shows an illustrative method for creating new newsgroups. The user may request that a

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particular new newsgroup be created at step 460. In  
response, personnel at the television distribution  
facility may review the request for a new newsgroup  
(step 462). The request may be rejected, in which case  
5 the new newsgroup is not created. The request may, on  
the other hand, be approved, in which case the new  
newsgroup may be created (step 464). The new newsgroup  
may be initially placed into a probationary status. At  
step 466 it is determined whether the response to the  
10 new newsgroup is good enough to remove it from the  
probationary status. This may be accomplished through  
examination of user comments in the newsgroup messages,  
through determining whether the number of newsgroup  
messages in the new newsgroup after a predetermined  
15 period of time is acceptable, or through any other  
suitable means for determining whether a newsgroup is  
good. If it is determined that the new newsgroup is  
good, then the new newsgroup may be made permanent at  
step 468. If the new newsgroup is not good, then it  
20 may be deleted at step 470. This is merely an  
illustrative method for creating newsgroups. Any other  
suitable method may be used.

The foregoing is merely illustrative of the  
principles of this invention and various modifications  
25 can be made by those skilled in the art without  
departing from the scope and spirit of the invention.

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